

# I-79 Roll Over Detection System Project PennDOT Engineering District 11



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# ➤ Roll Over Crashes

## In Pennsylvania

- 40,420 Overturned Vehicle Crashes  
(last 5-years, 2012-2016 data)
- Resulting in 1300 FATALITIES

# ▶ Roll Over Crashes



79 "S" BENDS

**21 ROLLOVER  
CRASHES DURING THE  
LAST FIVE YEARS  
(2012-2016)**



# ▶ Roll Over Crashes

I-79 NORTHBOUND S BENDS



I-79 SOUTHBOUND S BENDS



## I-79 S-Bend Area Crash Analysis Summary

### Southbound Crash Analysis:

28% of the crashes in this area involve trucks.

36% of the crashes are related to driving too fast for conditions.

4% of the crashes were due to driver over/under compensating for the curve in the roadway.

\*\*There was two fatal crashes, and one major injury crash.

### Northbound Crash Analysis:

18% of the crashes in this area involve trucks.

32% of the crashes are related to driving too fast for conditions.

9% of the crashes were due to driver over/under compensating for the curve in the roadway.

# ▶ Roll Over Crashes



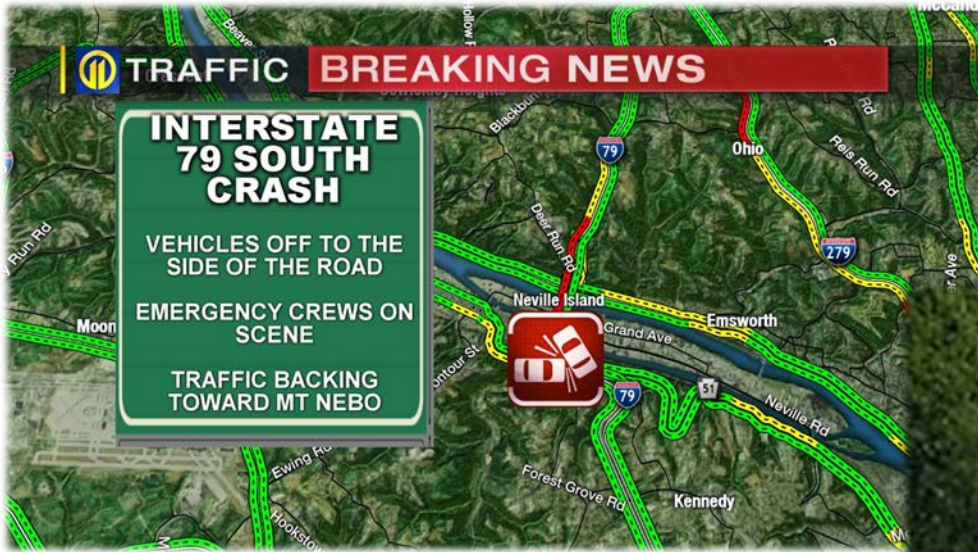
Often result vehicle and roadway damage....

# ▶ Roll Over Crashes



Often result in fatalities or injuries....

# ▶ Roll Over Crashes



Often result in traffic delays....



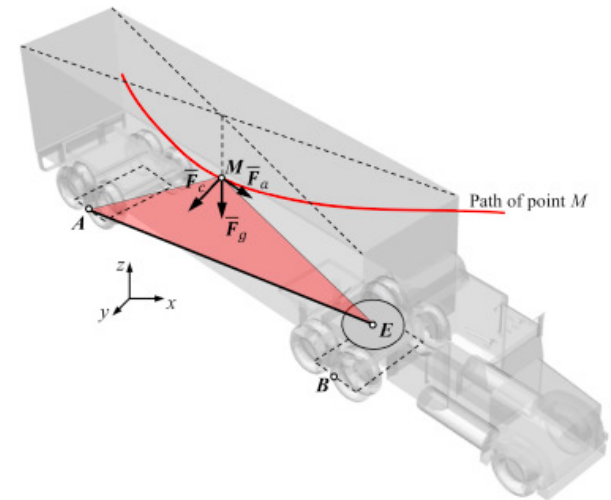
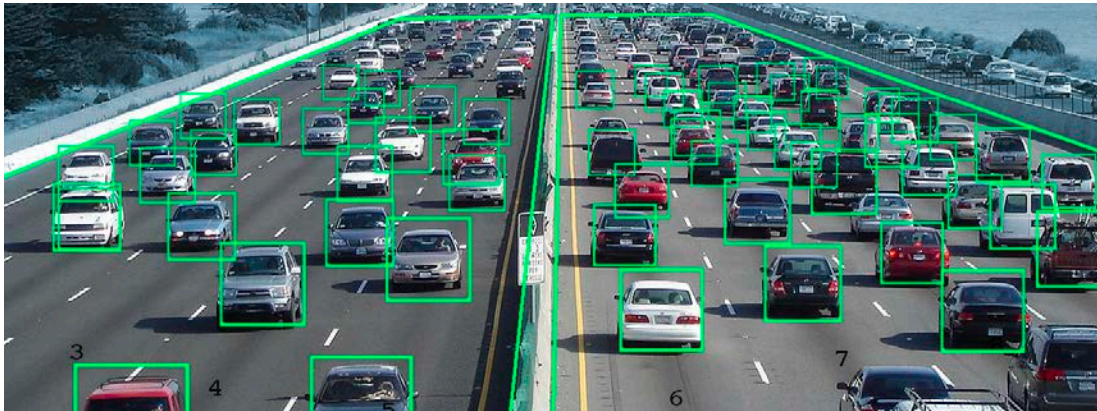


# Roll Over Detection System Project

- Automatic warning system on I-79 to help drivers take preventative action prior to entering the curve
- Based on its size and speed, system to alert drivers that vehicle may roll over if speed is not reduced
- When system signal is activated, a driver will reduce speed and proceed with caution through curves
- Reduces the likelihood of rollover crash
- System sends alert signal to TMC

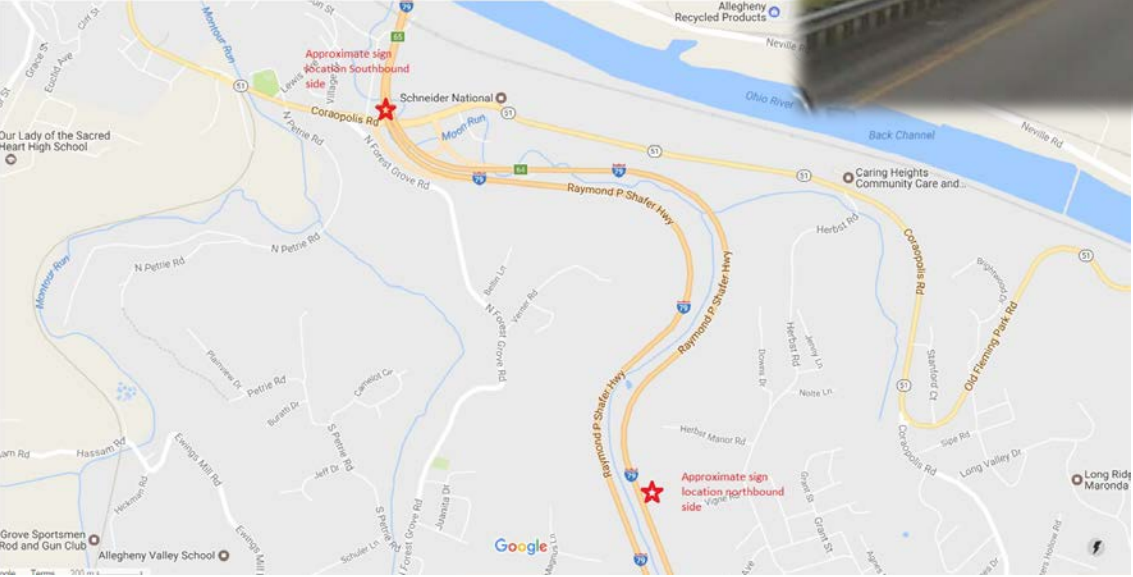
# Roll Over Detection System Project

The system consists of dedicated thermal cameras and video analytics software placed along the road to identify a given truck and its speed and size



# ▶ Roll Over Detection System Project

Full color DMS (dynamic message signs) will be installed in advance of and through the S-bends



# ▶ Roll Over Detection System Project

When software detects truck speed that may cause a rollover, software processes information and transmits signal to activate dynamic message signs

**'TRUCKS SLOW DOWN'**

(Truck's speed is greater than the threshold speed)



# ▶ Roll Over Detection System Project

An alarm will notify the Traffic Management Center staff of a possible truck rollover



Additionally the video analytics can activate an alarm for

- stopped vehicles
- wrong way vehicles
- congestion
- pedestrians

Providing faster response to incidents that happen in this area.

# ▶ Roll Over Detection System Project

Analytic detection includes four categories

- Large Truck (Tractor-trailer)
- Small Truck (Box truck, single-axle)
- Passenger Vehicle
- Motorcycle



# ▶ Roll Over Detection System Project

## Benefits

Reduce rollover crashes



Low maintenance costs



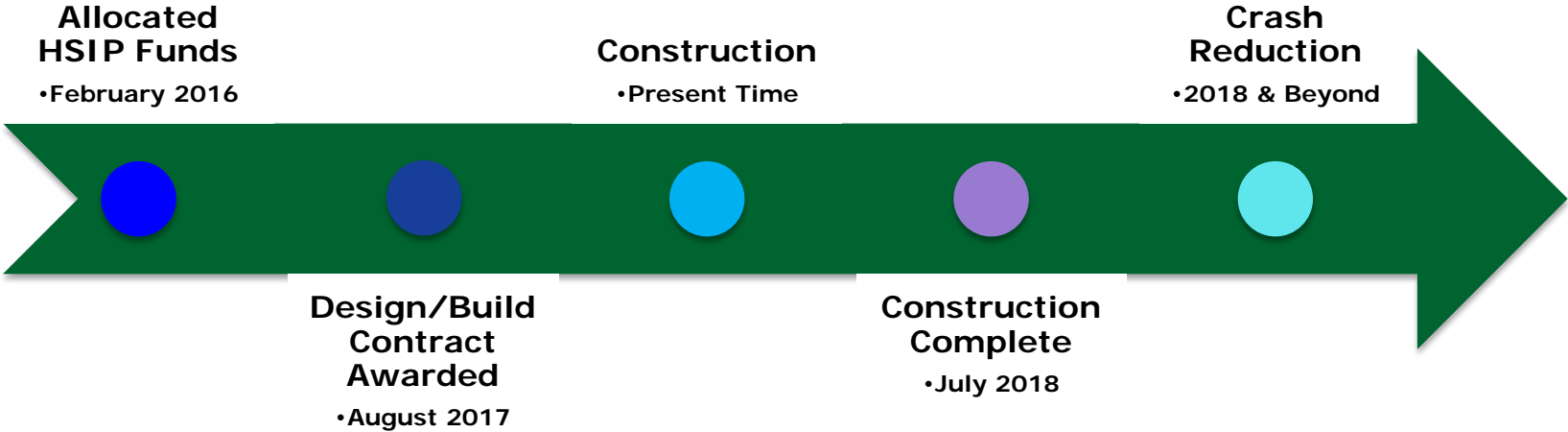
Reduce run off the road crashes



Faster incident response time

# Roll Over Detection System Project

## Project Timeline





# I-79 Rollover Detection System Project

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